AMENDMENTS AND REMARKS

Rejections to the Claims:

35 USC § 101

5   The Examiner rejected Claims 1-16 under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Specifically, the Examiner stated that Claim 1 recites "An apparatus for" without further stating any tangible device that is non-statutory for at least the reason that it is not tangibly embodied in a manner so as to be executable. The Examiner further stated that to overcome this type of rejection under 35 U.S.C. § 101,

10   claim 1 needs to be amended to include "An apparatus comprising a data processor." Regarding Claims 2-8, the Examiner stated that Claims 2-8 are dependent on independent Claim 1 and Claims 2-8 carry the same deficiency as Claim 1.

The Examiner stated that Claim 9 recites "A method for" without further stating any

15   concrete or tangible embodiment and the Examiner stated that this leads to a non-statutory method for at least the reason that it is an abstract idea. The Examiner further stated that to overcome this type of rejection under 35 U.S.C. § 101, Claim 9 needs to be amended to include "the method being executable by a computer." Regarding Claims 10-16, the Examiner stated that Claims 10-16 are dependent on independent

20   Claim 9 and Claims 10-16 carry the same deficiency as Claim 9.

Regarding Claims 1 and 9

The Applicants respectfully submit that the present invention manipulates data representing physical objects such as electronic documents, or activities to achieve a

25   practical application such as automatic extraction of metadata, (referring to Claims 1 and 9, "...using a first processing element to convert electronic documents to files and to provide the files to a second processing element, wherein the second processing element is used to extract predetermined information and provide the predetermined information to a reasoning element, and wherein the reasoning element uses a set of rules to extract

30   metadata from the predetermined information extracted from the files.")

The Applicants further submit that the present invention, as claimed in Claims 1 and 9, does not merely manipulate abstract ideas that are not tied to a technological art and the present invention does not solve a purely mathematical problem without any limitation to a practical application. On the contrary, the present invention automatically extracts a

5   full range of metadata (Author's, Title, Headers, etc.) from electronic documents, using a combination of text-based matching and spatial reasoning that better matches human behavior (Specification page 2 lines 20-23, Figures 1-3, and Claims 1-16) in order to facilitate retrieval services for electronic documents from digital libraries. Therefore, the Applicants submit that Claims 1 and 9 are directed toward statutory subject matter within

10   the meaning of 35 USC § 101.

Regarding the Examiner's statement that in order to overcome this type of rejection under 35 U.S.C. § 101, Claim 1 needs to be amended to include "an apparatus comprising a data processor," the Applicants submit that the apparatus disclosed in Claim 1 comprises

15   a first processing element and a second processing element which are structurally and functionally data processors. Therefore, the Applicants submit that Claim 1 as stated comprises data processors and is directed toward statutory subject matter within the meaning of 35 USC § 101.

20   Regarding the Examiner's statement that Claim 9 recites "a method for" without further stating any concrete or tangible embodiment, and that this leads to a non-statutory method for at least the reason that it is an abstract idea, the Applicants refer the Examiner to Claim 9 which clearly states a concrete and tangible embodiment comprising a method with a plurality of steps to be performed, wherein the steps provide an output of metadata

25   after all the steps are performed. Therefore, the Applicants believe that Claim 9 does not have to be amended to include "the method being executable by a computer," as the Examiner suggested in order to be statutory subject matter within the meaning of 35 USC § 101.

30   Furthermore, the Applicants submit that Claim 9 is directed toward a practical application, contrary to the Examiner's characterization that Claim 9 recites an abstract

idea. The United States Federal Circuit stated that "a claim is limited to a practical application when the method, as claimed, produces a concrete, tangible, and useful result." *AT&T v. Excel Communications, Inc.*, 172 F.3d 1358 (Fed. Cir.) The Applicants submit that Claim 9 claims a method for automatically extracting metadata

5   from electronic documents. Thus, Claim 9 is directed toward a method that produces a concrete, tangible and useful result, i.e. the result being providing an output in the form of metadata, wherein "metadata" is structured data about data, which may include information about the author, title, affiliation, and subject of a scientific paper, a document, or a web page, as known to a person of ordinary skill in the art. Therefore, the

10   Applicants submit that Claim 9 is directed toward a practical application and is statutory subject matter within the meaning of 35 USC § 101.

Thus, the Applicants respectfully request that the rejection of Claims 1 and 9 under 35 USC § 101 be withdrawn.

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Rejections to the Claims:
35 USC § 112, second paragraph
The Examiner rejected Claims 1-16 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter

20   which applicant regards as the invention. The Examiner stated that in Claim 1, line 4, the recitation of "is further configured" renders the claim to be indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner further stated that it is unclear to the Examiner what the first processing element was initially configured to perform, or how else the first processing

25   element can be configured.

Furthermore, the Examiner stated that in Claim 1, line 12, the recitation of "to also provide" renders the claim to be indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The

30   Examiner further stated that it is unclear to the Examiner how else is the database configured to do or what other steps is the database providing.

In addition, the Examiner stated that Claim 1, line 9, recites the limitation "extract predetermined information" then Claim 1 further recites "extracting metadata." The Examiner further stated that it is unclear to the Examiner what the difference between the two claimed limitations is, if any. The Examiner then requested that if there is a clear and precise difference between the "predetermined information" and the "metadata" that the clear and precise difference should be disclosed in Claim 1. The Examiner then concluded that Claim 1 is indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Furthermore, the Examiner stated that the Examiner did not find a clear definition of the "extracted predetermined information" in the specification.

Moreover, the Examiner stated that it is unclear to the Examiner how the two sets of "extracted information" and "metadata" are linked together in order to perform the steps of the claimed invention. The Examiner then requested that if there is a clear and precise link that the clear and precise link should be disclosed in Claim 1. The Examiner further stated that in the Specification a definition of "extracting predetermined information" is merely stated as extracting the desired information (referring to specification paragraph 0063) and only stated as such under "another embodiment" of the invention (referring to specification paragraph 0069) and not stated in the overall invention or the preferred embodiment.

With respect to Claims 9-16, the Examiner stated that independent Claim 9 carries the same deficiencies as Claim 1, and that Claims 2-8 and 10-16, are dependent upon independent Claims 1 and 9, respectively, and that Claims 2-8 and 10-16 carry the same deficiencies as Claims 1 and 9.

Furthermore, regarding Claims 2 and 10, the Examiner stated that the phrase "such as" renders Claims 2 and 10 indefinite because it is unclear to the Examiner whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d)

Regarding Claim 1

Regarding the Examiner's statement that in Claim 1, line 4, the recitation of "is further configured" renders Claim 1 to be indefinite, the Applicants submit that the use of the word further was intended to mean to the degree that the first processing element is

5   configured, as applied to that particular element. The word "further" is defined by the American Heritage Dictionary as, "to a considerable degree." *The American Heritage Dictionary of the English Language, Fourth Edition, Copyright 2000, by the Houghton Mifflin Company.* Thus, the Applicants believe that the use of the word is proper and not indefinite, as the word "further" clearly defines to what degree the first processing   '

10   element is configured.

Regarding the Examiner's statement that in Claim 1, line 12, the recitation of "to also provide" renders the Claim 1 to be indefinite, the Applicants submit that the use of the word "also" is not indefinite, as it refers to the prior limitation. In the prior limitation, the

15   second processing element provides (emphasis added) extracted predetermined information to the reasoning element. The database is configured to also provide (emphasis added) an input to the reasoning element. The word "also" has been defined as "in addition." *See* id. Therefore, the Applicants submit that *in addition* to the second processing element, the database provides an input to the reasoning element. Therefore,

20   the Applicants believe that the use of the word "also" is proper and not indefinite, as it refers to the prior limitation.

Regarding the Examiner's request that if there is a clear and precise difference between the "predetermined information" and the "metadata" that the clear and precise difference

25   should be disclosed in Claim 1, the Applicants refer the Examiner to Claim 1 where it is disclosed that a second processing element (Specification Figure 1 element 106) is configured to extract "predetermined information" (Specification Figure 1 element 108) from files (Specification Figure 1 element 104) and then provide the extracted predetermined information to a reasoning element (Specification Figure 1 element 110),

30   wherein the reasoning element uses a set of rules (Specification Figure 1 element 114) to extract "metadata" (Specification Figure 1 element 116) from the "predetermined

information" (Specification Figure 1 element 108) extracted from the files (Specification

Figure 1 element 104). Therefore, the Applicants state that there is a clear and precise

difference between the "predetermined information" and the "metadata" already disclosed

in Claim 1, since the "predetermined information" is used to extract the "metadata"

5   (Specification page 7 lines 11-19).

Furthermore, the Applicants respectfully refer the Examiner to the following standard

definition of metadata provided by the Free On-line Dictionary of Computing, as known

to a person of ordinary skill in the art, "metadata is definitional data that provides

10   information about or documentation of other data managed within an application or

environment. For example, metadata would document data about data elements or

attributes, (name, size, data type, etc.) and data about records or data structures (length,

fields, columns, etc.) and data about data (where it is located, how it is associated,

ownership, etc.). Meta-data may include descriptive information about the context,

15   quality and condition, or characteristics of the data." *The Free On-line Dictionary of

Computing,* © *1993-2005 Denis Howe.* Metadata is structured data about data describing

the content, quality, condition, and other characteristic of data, which may include

information about the author, title, affiliation, date, source, scale, resolution, accuracy,

format, and subject of a scientific paper, a document, or a web page. Metadata is added

20   in the head section of a webpage or electronic document, or metadata is stored in a

database. Therefore, "metadata" as stated in Claims 1 and 9, is being used as the means

for providing a spatial knowledge-based methodology to document disaggregation

(Specification page 5 lines 4-19), wherein the metadata consists of the title, the authors,

the affiliations, and the headers of electronic documents such as a scientific paper.

25

Further, the Federal Circuit has stated that, "The person of ordinary skill is a hypothetical

person who is presumed to be aware of all the pertinent prior art. The actual inventor's

skill is not determinative." *Custom Accessories Inc. v. Jeffrey-Allan Indus.,* 807 F.2d

955 (Fed. Cir. 1986). Therefore, the Applicants respectfully submit that the standard

30   term "metadata" would have never been confused by a person of ordinary skill in the art

with the term "predetermined information," which is used to be combined with a set of

rules by a reasoning element in order to extract metadata. The "predetermined information" is predetermined by a user ahead of time depending on the electronic files to be disaggregated and depending on which type of information is needed to generate the spatial layout facts (Specification page 6 line 15-18 and page 7 lines 11-22).

5

The reason the Applicants did not address the definition of metadata is that the CCPA has stated that under 35 U.S.C. § 112, "not every last detail is to be described, else patent specifications would turn into production specifications, which they were never intended to be." *In re* Gay, 309 F.2d 769 (C.C.P.A.). Therefore, the present invention omitted the

10   description of "metadata," which is a standard computer science term known to a person of ordinary skill in the art.

Regarding the Examiners statement that if there is a clear and precise link between the "extracted predetermined information" and the "metadata" that the clear and precise link

15   should be disclosed in Claim 1, the Applicants refer the Examiner to the comments above regarding the difference between the "extracted predetermined information" and the "metadata" where the Applicants stated that Claim 1 discloses that the "extracted predetermined information" is used to extract the "metadata" (Specification page 7 lines 11-19). As stated above and repeated here for clarity, Claim 1 clearly discloses that a

20   second processing element (Specification Figure 1 element 106) is configured to extract "predetermined information" (Specification Figure 1 element 108) from files (Specification Figure 1 element 104) and then provide the extracted predetermined information to a reasoning element (Specification Figure 1 element 110), wherein the reasoning element uses a set of rules (Specification Figure 1 element 114) to extract

25   "metadata" (Specification Figure 1 element 116) from the "predetermined information" (Specification Figure 1 element 108) extracted from the files (Specification Figure 1 element 104).

Regarding Claim 9

The Applicants refer the Examiner to the comments above regarding Claim 1.

Furthermore, the Applicants submit that the limitations of "is further configured" and "to also provide" are not disclosed in Claim 9.

5

For the reasons given above and in light of the fact that the current specification was written in a manner using concise and exact terms, well-know by any person skilled in the art of computer science and electronic document processing, the Applicants respectfully request that the rejection of Claims 1 thru 16 under the second paragraph of

10   35 U.S.C. § 112 be withdrawn.

35 USC § 102(b)

The Examiner rejected Claims 1-16 under 35 U.S.C. § 102(b) as being anticipated by Mahoney et al. (US Pat. No. 5,999,664), herein referred to as the "Mahoney patent."

15

In particular, the Examiner stated that, regarding Claim 1, the Mahoney patent teaches an apparatus for automatically extracting metadata from electronic documents comprising a first processing element, a second processing element, a reasoning element, and a database, wherein, said first processing element is further

20   configured to convert electronic documents into files (referring to column 7 lines 43-53); said first processing element is configured to provide the files to a second processing element (referring to column 5 lines 23-36); said second processing element is configured to receive said files and extract predetermined information (referring to column 4 lines 46-58 and column 8 lines 10-24); said second

25   processing element is further configured to provide said extracted predetermined information to said reasoning element (referring to column 8 lines 41-51); said database is configured to also provide input to said reasoning element (referring to column 8 lines 53-65); said reasoning element is configured to use a set of rules to extract metadata from the files (referring to column 4 lines 46-58, column 9 lines

30   19-31, and Table 1 on column 10 which shows "Rules"); and said reasoning element provides an output of metadata (referring to column 9 lines 32-51).

Regarding Claims 2 and 10, the Examiner stated that the Mahoney patent discloses an apparatus for automatically extracting metadata from electronic documents, wherein said files are substantially format invariant data files such as Postscript files

5   (referring to column 14 lines 11-44 and column 1 lines 34-37).

Regarding Claims 3 and 11, the Examiner stated that the Mahoney patent discloses that wherein said predetermined information is substantially spatial layout facts (referring to column 5 lines 46-61).

10

Regarding Claims 4 and 12, the Examiner stated that the Mahoney patent discloses that wherein the second processing element and said database simultaneously input to the reasoning element (referring to column 2 lines 4-16).

15   Regarding Claims 5 and 13, the Examiner stated that the Mahoney patent discloses that wherein said set of rules can be updated (referring to column 2 lines 17-36), wherein "set of rules" reads on genre or "predefined form," (referring to Figure 9 element 990).

20   Regarding Claims 6 and 14, the Examiner stated that the Mahoney patent discloses that wherein said metadata is substantially comprised of title, author, affiliation, author affiliation, and table of contents (referring to column 4 lines 47-56, and column 9 lines 23-31).

25   Regarding Claims 7 and 15, the Examiner stated that the Mahoney patent discloses that wherein said metadata is provided to a user interface (referring to Figure 7).

Regarding Claims 8 and 16, the Examiner stated that the Mahoney patent discloses that wherein said metadata is provided to a storage medium (referring to Figure 2).

30

Regarding Claim 9, the Examiner stated that the Mahoney patent discloses a method

for automatically extracting metadata from electronic documents comprising a first

processing element, a second processing element, a reasoning element, and a

database, and comprising the steps of: using said first processing element to convert

electronic documents into files (referring to column 7 lines 43-53); further using

5   said first processing element to provide the files to a second processing element

(referring to column 5 lines 23-36); using said second processing element to receive

said files and extract predetermined information (referring to column 4 lines 46-58,

and column 8 lines 10-24); further using said second processing element to provide

said extracted predetermined information to said reasoning element (referring to

10   column 8 lines 41-51); using said database to provide input to said reasoning

element (referring to column 8 lines 53-65); using a set of rules in said reasoning

element to extract metadata from the files (referring to column 4 lines 46-58, and

column 9 lines 19-31); and providing an output of metadata from said reasoning

element (referring to column 9 lines 32-51).

15

Regarding Claims 1 and 9 rejection over the Mahoney patent

The United States Federal Circuit stated that under 35 U.S.C. § 102(b), "There must be

no difference between the claimed invention and the reference disclosure, as viewed by a

person of ordinary skill in the field of the invention." *Scripps Clinic & Research Found.*

20   *V. Genentech Inc.*, 927 F.2d 1576 (Fed. Cir. 1991).

The Applicants submit that there are significant differences between the claimed

invention and the Mahoney patent as viewed by a person of ordinary skill in the field of

extraction of metadata from electronic documents. The Applicants submit that the

25   present invention automatically (without user intervention) extracts metadata from

electronic documents (as disclosed in Claims 1-16 of the Specification), while the

Mahoney patent is a user interactive system that depends on a user providing the system

with specific features of the documents, such as the layout components and structures of

objects within the electronic documents, in order for the Mahoney patent to function

30   properly (referring to the Abstract). The Mahoney patent discloses a document search

system that provides <u>a user with a programming interface for dynamically specifying</u>

<u>features of documents, and for interactive user specification of layout components and structures of documents</u> (emphasis added). The Applicants further submit that the Mahoney patent is responsive to commands from a user, wherein a user can manually specify properties of document images which are recorded in a file system such as

5   document metadata (referring to column 8 lines 39-51 and column 9 lines 19-31). Furthermore, the Applicants submit that the Mahoney patent teaches that the document metadata may be specified by a user at the time, or some time after, a document image is scanned or otherwise added to the file system (referring to column 9 lines 19-31). In contrast, the present invention automatically extracts metadata from electronic documents

10   by using a reasoning element which uses a set of rules to automatically extract metadata from extracted predetermined information from files (Claim 1 line 13 and Claim 9 lines 13-14).

Furthermore, the United States Federal Circuit stated that "Anticipation requires that

15   every element of the claims appear in a single reference ..." *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264 (Fed. Cir. 1991). Moreover, "Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983).

20

Independent Claim 1 of the present invention recites the limitation that "second processing element is configured to provide said extracted predetermined information to said reasoning element, and said reasoning element is configured to use a set of rules to extract metadata from the files." The Applicants submit that this limitation is not taught,

25   disclosed, or suggested in the Mahoney patent. Specifically, as stated in the abstract of the Mahoney patent, the Mahoney patent teaches a user interactive system that depends on a user providing the system with specific features of the documents in order for the Mahoney patent to function properly, in contrast with the reasoning element of the present invention, wherein the reasoning element uses a set of rules to automatically

30   extract metadata and provides an output of metadata from files (Claim 1 lines 13-17).

The Applicants respectfully request that the Examiner indicate exactly where in the Mahoney patent does the Examiner find that the limitation "second processing element is configured to provide said extracted predetermined information to said reasoning element, and said reasoning element is configured to use a set of rules to extract metadata

5   from the files" is taught, disclosed, or suggested.

Regarding Claim 9, the Applicants respectfully refer the Examiner to the comments above regarding Claim 1. The Applicants submit that the limitation "further using said second processing element to provide extracted predetermined information to said

10   reasoning element, and using a set of rules in said reasoning element to extract metadata from the files" is not taught, disclosed, or suggested in the Mahoney patent.

In addition, the United States Federal Circuit further stated that under 35 U.S.C. § 102, "anticipation requires the presence in a single prior art reference disclosure of each and

15   every element of the claimed invention, <u>arranged as in the claim</u>" *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452 (Fed. Cir. 1984).

Therefore, in order to establish a prima facie case of anticipation the Examiner must set

20   forth an argument that provides (1) a single reference (2) that teaches or enables (3) each of the claimed elements (as arranged in the claim) (4) either expressly or inherently and (5) as interpreted by one of ordinary skill in the art. All of these factors must be present, or a case of anticipation is not met.

25   Therefore, the Applicants submit that the Mahoney patent, in combination with the knowledge of one skilled in the art, does not teach, disclose or suggest expressly or inherently all of the claim limitations of Claims 1 and 9 as arranged in Claims 1 and 9.

Because the Mahoney patent fails to teach all the elements of Claims 1 and 9, arranged

30   exactly as in Claims 1 and 9, for reasons discussed above, the Applicants respectfully

request that the Examiner withdraw this rejection of Claims 1 and 9 under 35 U.S.C. § 102(b).

DEPENDENT CLAIMS

5   Claims 2-8 are dependent upon Claim 1 and Claims 10-16 are dependent upon Claim 9. The Applicants respectfully refer the Examiner to the comments above regarding Claims 1 and 9. For at least the reasons given above, the Applicants submit that Claims 1 and 9 are patentable over the cited prior art. Therefore, the Applicants submit that Claims 2-8 and 10-16 are also patentable over the cited prior art at least based on their dependence

10   upon an allowable base claim.

<u>Closing Remarks</u>:

The Applicants respectfully submit, in light of the above remarks, that the application and all pending claims 1-16 are now in allowable condition. Therefore, reconsideration is respectfully requested. Accordingly, early allowance and issuance of this application is

5   respectfully requested. In the event that the Examiner wishes to discuss any aspect of this response, or believes that a conversation with either the Applicants or Applicants' representative would be beneficial the Examiner is encouraged to contact the undersigned at the telephone number indicated below.

10   The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 50-2691. In particular, if this response is not timely filed, the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136(a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee

15   due in connection therewith may be charged to deposit account no. 50-2691.

Respectfully submitted,

20   _03/01/2006_   _____

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